PHYSICAL MEDICINE OVER THE LAST 40 YEARS[1]

LEIGH T. WEDLICK,
Hampton Hospital,
Melbourne.

In medical rehabilitation, where we are primarily concerned with the treatment of physical disabilities of the locomotor system, physical methods of treatment play a very large part in the physical recovery of the patient. All my life I have been involved with this, and particularly with the work of physiotherapists, and it is useful to look back over the changes which have occurred in the last forty years – the main one of course has been the discarding of purely traditional methods and an attempt to use methods which have a scientific basis. But it is worth pointing out at this early stage that in doing this we can become a little pseudo-scientific, and perhaps most of all we tend to forget that no two people respond in the same manner, whether it be to physical treatment or to drugs; while we have general principles the best results are obtained only by studying each patient as an individual. Not least important is the rapport established between the patient and the therapist.

In 1932 I sat for my M.R.C.P. in London and my principal examiner Lord Horder, then the outstanding physican in Europe, was interested in the developing field of physical medicine. I was amazed to see the vast range of physical treatments in the British Red Cross Clinic for rheumatism; whereas at that time in Australia physical treatment was very limited and carried out by masseurs in massage departments.

This was an exciting era – it was the era when I was able to meet and work beside many pioneers in the field. Eidinow at the London Light Clinic was a world authority in Ultra-violet light. Cumberbatch at St. Thomas' was one of the fathers of medical electricity. James Mennell was manipulating at St. Thomas', and Bauwens was coming in as a young man to the electrical department at that hospital.

Massage has tended to be neglected latterly; and this is a pity because deep kneading massage is invaluable in the treatment of local fibrositic lesions especially in muscles and tendons.

Ultraviolet light was used a great deal in those days, and there were several reasons for this. General ultra-violet was used as a tonic because people often had malnutrition and did not have much natural sunlight, whereas of course this has never really been a problem in Australia. Local ultra-violet was used with infections in the skin, however antibiotics have largely removed the need for local ultra-violet in recent years. It was a standard method of treatment in surgical tuberculosis and in that disfiguring condition of lupus vulgaris – something which was rife in Europe when I was there in 1932, but which in this country has been extremely rare. Better social conditions and the advent of other measures has largely obviated the indications for ultra-violet in this respect, but it was so important in those days that the Carbon Arc Lamp devised by Finsen at Copenhagen in Denmark was known all over the world in the treatment of lupus vulgaris. The diminution in the use of ultra-violet therefore, has been largely due to changing conditions, and not because it was not useful.

Heat has always been beneficial in relieving pain and spasm, and in the early 1930's the only method of getting heat deeply into the body was by spark gap diathermy, which was widely used.

It was in London in 1933 that I worked with Bauwens and tried out the first shortwave machine available in Great Britain, and got a burn from my metal cuff links in the process. This was the era of electrical treatments, and in Australia in about 1935 we commenced using shortwave treatment, which has proved a very efficient way of producing fairly deep heating throughout the tissues, and still stands as the bread and butter method in very many cases where deep heating is required. The advent, however, of pacemakers and hearing aids has brought with it potential hazards where deep heating electrical methods are used, as all physiotherapists would doubtless be well aware. In the 1940's we saw the emergence of sophisticated electronic equipment capable of producing a wide range of current forms for electrical stimulation, and in this country in 1953 we pioneered the use of strength duration curves in electrodiagnosis. This is a simple efficient method of studying peripheral nerve lesions but I would stress that the reliability of

1 Based on a paper presented at the Combined National Clinical Seminar of the Australian Association of Physical and Rehabilitation Medicine and the Australian Association of Manipulative Medicine, October 1977.

the results depends not only on the instrument itself but on the experience of the operator.

At this time there were changes generally, trying to do away with traditional methods and seek for scientific methods, and in 1939 the first international congress was held on ultrasonics. Because of over-extravagant claims, the development of ultrasonics was held up for quite a few years, but it has proved to be an invaluable method of producing very deep penetration through soft tissues, though it is blocked completely by bone. It does have the advantage of reducing nerve pain and therefore is far preferable to shortwave in the treatment of disc lesions and in relieving nerve pain such as in painful neuromata in amputee stumps.

It was about this time that we moved from the electronic era into the exercise era, and this is quite a logical development, only unfortunately, as is often the case with new methods, exercise can be overdone and not always used in a logical manner. I not infrequently see cases of tendinitis of the shoulder pushed with exercise when they should be having rest and Cortisone injections, and I am not happy with the use of the physiological terms of isotonic and isometric, which do not seem to me to convey accurately the purpose of the exercises. I prefer to see exercises specified as repetitive exercise to increase endurance, exercises to increase range of movement, resistance exercises to increase muscle power or stabilising exercises for the unstable back. It was in 1945 that the exercise era really began with Thomas de Lormes system of progressive maximum resistance exercises to increase muscle power. Prior to this there had been developments in the early days with largely Swedish exercises, in 1931 by Guthrie Smith using suspension apparatus for exercises and removing the effects of gravity, and in 1928 by the development of the Hubbard tank for hydro-gymnastics. In 1934 Codman introduced his pendulum exercises for the shoulder which did not impose any strain on supraspinatus, and in 1936 breathing exercises were introduced at the Brompton Hospital for Chest Diseases. de Lorme's stimulus to the exercises programme has been followed by many developments. The technique of proprioceptive neuromuscular facilitation developed from the preliminary work of Kabat and was published by Margaret Knott in 1956, the emphasis being here on the use of afferent stimulation, either by voice or by touch, and the use of diagonal movements and patterns. The Bobath techniques in 1952 introduced inhibition of reflexes rather than utilisation of muscle power and paid a great deal of attention to positioning of patients. I think every good therapist wants to know the principles of these various re-education techniques, but I do not think any one method should be pushed to the complete exclusion of others.

In recent years we have become aware of the value of skin cooling with ice packs in the treatment of injuries, and it is an alternative to heat in the relief of muscle spasm.

In the last couple of decades the use of Cortisone has led to the use of Hydro-cortisone injections in soft tissue lesions and into joints where there is effusion, and this has proved invaluable – nowhere probably more than in the treatment of tennis elbow, tendinitis of the shoulder, and in some of the low lumbar ligament problems that we often encounter. So far I have not mentioned manipulation. Let me just point out that it is not new – it is quite old. James Mennell was using this in London when I was there in 1932, and it has been used by many people since. I find it invaluable, but I think it is more important to know the contra-indications to it and to remember that little and often is better than trying to do too much at one time, and here I go along with the feeling of Sir Robert Jones. I must admit that in back problems, and particularly in cervical degenerative conditions, gentle manipulation under traction is invaluable – provided it is used with discretion and not with brute force. I am old-fashioned enough to believe it has little place in the acute disc lesion, because it is a blind procedure and the possible beneficial effects must be balanced against the risk of causing nerve damage; manipulation in flexion is not without risk. Traction can be very useful in the treatment of lumbar lesions – either alone or combined with other measures – and used with discretion. I feel it is effective only when given on a traction couch with chest and pelvic harness.

Acupuncture and pain block stimulators can sometimes relieve pain but the scientific basis is still open to question and the gate theory is still only a theory.

Lastly, could I utter a word of warning. A great many physiotherapists seem to be very keen on microwave. I think we must be clear we know the theoretical and practical basis of any treatment. Unfortunately in this country the approved frequency for microwave of 2,450 megacycles has little more penetration than infrared with more hazards. There has recently been with physiotherapists an upsurge of interest in interferential treatment. Let me point out this is not by any means new. I was in London in 1956 when Bauwens tried out the

first interferential machine in Great Britain on my thigh. The principle is simple. A high frequency current is applied to two electrodes – one on each side of the thigh, and in between these are placed an anterior and posterior electrode at the same frequency, except for a difference of 100 cycles. Being high frequency currents there is no sensation in the skin but where the beams intersect we get a beat or heterodyne frequency of 100 per second which produces painless deep contraction in the muscles. However, it is not easy for me to think of many times when this could achieve anything that cannot be done in other more simple ways.

Let us therefore, in using physical methods, be clear what our objectives are. Are they to increase range, to increase muscle power, to re-educate, to rest or to exercise, to apply heat or to apply cooling, and having decided this, we should select the most effective method and apply it in a technically correct manner. Finally, it is important to remember that in all forms of treatment the therapist must be clear about the objectives, and not become mesmerized with the intricacy of the equipment. Equally important is the fact that a major ingredient of all treatment is the rapport established between patient and therapist, and this has not changed in 40 years.